CLAIMS:

1.   A method comprising:

selecting a first parameter configuration for a neurostimulator;

receiving an indication of observed efficacy of the first parameter configuration; and

selecting a second parameter configuration for the neurostimulator based on the indication of observed efficacy and a set of additional electrode configurations identified by a decision tree.

2.   The method of claim 1, wherein the parameter configurations include electrode configurations, each of the electrode configurations defining a combination of two or more electrodes for delivery of neurostimulation energy.

3.   The method of claim 2, wherein each of the electrode configurations defines polarities for electrodes in the combination.

4.   The method of claim 2, wherein the electrodes are carried by two or more implanted leads, and the electrodes are associated with different target regions within a body of a patient.

5.   The method of claim 4, wherein the leads are implanted proximate a spine of a patient.

6.   The method of claim 2, further comprising iteratively selecting additional electrode configurations for the neurostimulator based on the indication of observed efficacy of preceding electrode configurations and the decision tree, and terminating the iterative selection of the additional electrode configurations when one or more termination criteria are satisfied.

7.   The method of claim 6, wherein the termination criteria include selection of one of the electrode configurations with an observed efficacy that satisfies a threshold efficacy.

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8.   The method of claim 7, wherein the termination criteria include an iteration limit.

9.   The method of claim 2, further comprising:

iteratively selecting additional electrode configurations for the neurostimulator based on observed efficacy of preceding electrode configurations and the decision tree;

terminating the iterative selection of the additional electrode configurations at a final electrode configuration when one or more termination criteria are satisfied; and

programming the neurostimulator to employ the final electrode configuration in delivery of neurostimulation therapy.

10.   The method of claim 9, wherein the neurostimulator is a spinal cord stimulator, and the final electrode configuration includes electrodes deployed on one more implanted spinal leads.

11.   The method of claim 10, wherein the final electrode configuration defines a combination of two electrodes from a set of at least eight electrodes.

12.   The method of claim 1, wherein the first parameter configuration includes a first electrode configuration and the second parameter configuration includes a second electrode configuration, wherein the first electrode configuration is defined by a root node in the decision tree, the method further comprising expanding the root node to produce a next-level node defining the second electrode configuration when the observed efficacy for the first electrode configuration does not satisfy a threshold efficacy.

13.   The method of claim 12, further comprising receiving an indication of the efficacy of the second electrode configuration defined by the next-level node and further expanding the next-level node to produce one or more additional next-level nodes defining additional electrode configurations until one of the electrode configurations associated with one of the next-level nodes satisfies the threshold efficacy or an iteration limit is reached.

14. The method of claim 1, wherein selecting the first and second parameter configurations includes suggesting the first and second parameter configurations to a user.

15. The method of claim 1, wherein receiving an indication relating to observed efficacy includes receiving user input indicating observed efficacy.

16. The method of claim 1, further comprising updating the decision tree based on the observed efficacy.

17. The method of claim 1, further comprising updating the decision tree based on the observed efficacy for a particular patient.

18. The method of claim 1, further comprising applying a first decision tree to determine a neurostimulation therapy type, neurostimulation device type, lead type and symptomatic indication, and applying a second decision tree based on the determination to select the second parameter configuration.

19. A computer-readable medium comprising instructions to cause a processor to:
   select a first parameter configuration for a neurostimulator;
   receive an indication of observed efficacy of the first parameter configuration; and
   select a second parameter configuration for the neurostimulator based on the indication of observed efficacy and a set of additional electrode configurations identified by a decision tree.

20. The computer-readable medium of claim 19, wherein the parameter configurations include electrode configurations, each of the electrode configurations defining a combination of two or more electrodes for delivery of neurostimulation energy.

21. The computer-readable medium of claim 20, wherein each of the electrode configurations defines polarities for electrodes in the combination.

22.   The computer-readable medium of claim 20, wherein the electrodes are carried by two or more implanted leads, and the electrodes are associated with different target regions within a body of a patient.

23.   The computer-readable medium of claim 22, wherein the leads are implanted proximate a spine of a patient.

24.   The computer-readable medium of claim 20, wherein the instructions cause the processor to iteratively select additional electrode configurations for the neurostimulator based on the indication of observed efficacy of preceding electrode configurations and the decision tree, and terminate the iterative selection of the additional electrode configurations when one or more termination criteria are satisfied.

25.   The computer-readable medium of claim 24, wherein the termination criteria include selection of one of the electrode configurations with an observed efficacy that satisfies a threshold efficacy.

26.   The computer-readable medium of claim 25, wherein the termination criteria include an iteration limit.

27.   The computer-readable medium of claim 20, wherein the instructions cause the processor to:

iteratively select additional electrode configurations for the neurostimulator based on observed efficacy of preceding electrode configurations and the decision tree;

terminate the iterative selection of the additional electrode configurations at a final electrode configuration when one or more termination criteria are satisfied; and

program the neurostimulator to employ the final electrode configuration in delivery of neurostimulation therapy.

28.   The computer-readable medium of claim 27, wherein the neurostimulator is a spinal cord stimulator, and the final electrode configuration includes electrodes deployed on one more implanted spinal leads.

29.   The computer-readable medium of claim 28, wherein the final electrode configuration defines a combination of two electrodes from a set of at least eight electrodes.

30.   The computer-readable medium of claim 19, wherein the first parameter configuration includes a first electrode configuration and the second parameter configuration includes a second electrode configuration, wherein the first electrode configuration is defined by a root node in the decision tree, the computer-readable medium further comprising instructions to cause the processor to expand the root node to produce a next-level node defining the second electrode configuration when the observed efficacy for the first electrode configuration does not satisfy a threshold efficacy.

31.   The computer-readable medium of claim 30, further comprising instructions to cause the processor to receive an indication of the efficacy of the second electrode configuration defined by the next-level node and further expand the next-level node to produce one or more additional next-level nodes defining additional electrode configurations until one of the electrode configurations associated with one of the next-level nodes satisfies the threshold efficacy or an iteration limit is reached.

32.   The computer-readable medium of claim 19, wherein the instructions cause the processor to select the first and second parameter configurations by suggesting the first and second parameter configurations to a user.

33.   The computer-readable medium of claim 19, wherein the instructions cause the processor to receive an indication relating to observed efficacy by receiving user input indicating observed efficacy.

34.   The computer-readable medium of claim 19, wherein the instructions cause the processor to update the decision tree based on the observed efficacy.

35.   The computer-readable medium of claim 19, wherein the instructions cause the processor to update the decision tree based on the observed efficacy for a particular patient.

36.   The computer-readable medium of claim 19, wherein the instructions cause the processor to apply a first decision tree to determine a neurostimulation therapy type, neurostimulation device type, lead type and symptomatic indication, and apply a second decision tree based on the determination to select the second parameter configuration.

37.   A device comprising a processor programmed to:
        select a first parameter configuration for a neurostimulator;
        receive an indication of observed efficacy of the first parameter configuration; and
        select a second parameter configuration for the neurostimulator based on the indication of observed efficacy and a set of additional electrode configurations identified by a decision tree.

38.   The device of claim 37, wherein the parameter configurations include electrode configurations, each of the electrode configurations defining a combination of two or more electrodes for delivery of neurostimulation energy.

39.   The device of claim 38, wherein each of the electrode configurations defines polarities for electrodes in the combination.

40.   The device of claim 38, wherein the electrodes are carried by two or more implanted leads, and the electrodes are associated with different target regions within a body of a patient.

41.   The device of claim 40, wherein the leads are implanted proximate a spine of a patient.

42.   The device of claim 38, wherein the processor iteratively selects additional electrode configurations for the neurostimulator based on the indication of observed efficacy of preceding electrode configurations and the decision tree, and terminates the iterative selection of the additional electrode configurations when one or more termination criteria are satisfied.

43.   The device of claim 42, wherein the termination criteria include selection of one of the electrode configurations with an observed efficacy that satisfies a threshold efficacy.

44.   The device of claim 43, wherein the termination criteria include an iteration limit.

45.   The device of claim 38, wherein the processor:
        iteratively selects additional electrode configurations for the neurostimulator based on observed efficacy of preceding electrode configurations and the decision tree;
        terminates the iterative selection of the additional electrode configurations at a final electrode configuration when one or more termination criteria are satisfied; and
        programs the neurostimulator to employ the final electrode configuration in delivery of neurostimulation therapy.

46.   The device of claim 45, wherein the neurostimulator is a spinal cord stimulator, and the final electrode configuration includes electrodes deployed on one more implanted spinal leads.

47.   The device of claim 46, wherein the final electrode configuration defines a combination of two electrodes from a set of at least eight electrodes.

48.   The device of claim 38, wherein the first parameter configuration includes a first electrode configuration and the second parameter configuration includes a second electrode configuration, wherein the first electrode configuration is defined by a root node in the decision tree, and the processor expands the root node to produce a next-level node defining

the second electrode configuration when the observed efficacy for the first electrode configuration does not satisfy a threshold efficacy.

49.   The device of claim 48, wherein the processor receives an indication of the efficacy of the second electrode configuration defined by the next-level node and further expands the next-level node to produce one or more additional next-level nodes defining additional electrode configurations until one of the electrode configurations associated with one of the next-level nodes satisfies the threshold efficacy or an iteration limit is reached.

50.   The device of claim 37, wherein the processor selects the first and second parameter configurations by suggesting the first and second parameter configurations to a user.

51.   The device of claim 37, wherein the processor receives an indication relating to observed efficacy by receiving user input indicating observed efficacy.

52.   The device of claim 37, wherein the processor updates the decision tree based on the observed efficacy.

53.   The device of claim 37, wherein the processor updates the decision tree based on the observed efficacy for a particular patient.

54.   The device of claim 37, wherein the processor applies a first decision tree to determine a neurostimulation therapy type, neurostimulation device type, lead type and symptomatic indication, and applying a second decision tree based on the determination to select the second parameter configuration.